Child's Gender, Father's Parenting and Emotion Regulation in School Aged Children

Non-Honor Undergraduate Thesis

By

Rachel Dawson

The Ohio State University
Education & Human Ecology

Project Advisor: Sarah J. Schoppe-Sullivan, Department of Human Development and Family Science

Abstract

Emotion regulation, the internal and external processes involved in initiating, maintaining and modulating the occurrence, intensity and expression of emotions, is vastly important for success in school and throughout life. Prior research has pointed to a link between the development of strong emotion regulation skills and the parent-child relationship. One important aspect of the parent-child relationship is parenting quality. This research sought to investigate the associations of child gender, father's parenting quality at 9-months postpartum, and emotion regulation in school age children. Participants were recruited from a sample of 182 families from The New Parents Project, a longitudinal study of dual-earner couples and their first-born child. Father's parenting was studied at nine months postpartum using a five-minute play interaction between father and child. To measure emotion regulation, children performed the Attractive Toy in Transparent Box task. Upon analysis of father's parenting quality in infancy and children's emotion regulation, it was found that boys are more likely to engage in self-soothing behaviors when their fathers had lower parenting quality in infancy. However there was no significance for girls. Through investigating this relationship this study found an association between parenting quality and emotion regulation strategies children use, along with information about how gender affects regulation. Overall this research has provided more information on the importance of the father-child relationship and child outcomes.

Child's Gender, Father's Parenting and Emotion Regulation in School Age Children

Emotion regulation, the internal and external processes involved in initiating, maintaining and modulating the occurrence, intensity and expression of emotions, is vastly important for success in school and throughout life. Prior research has pointed to a link between the development of strong emotion regulation skills and the parent-child relationship. Many factors influence this development of emotion regulation. According to prior research, gender plays a role in the emotions expressed and the strategies used by each gender (Chaplin, Cole & Zahn-Waxler, 2005). Theorists argue that males and females are socialized to adopt different cultural gender roles for emotion (Cracco, Goossens & Braet, 2017). One way children learn these gender norms is through parents emotion socialization in the family. According to prior research parents interact with, talk to, and give feedback to their children, which in turn allows children to express gender-role consistent emotions based on what and how their parents have socialized (Cracco et al., 2017).

Literature Review

Gender is not the only important factor in the development of children's emotion regulation. However, theory and prior research point to a link between parent's parenting, behaviors in infancy and children's emotion regulation, including parenting quality and mind-mindedness (Meins, 2013; Meins, 2001; Brown, Mangelsdorf & Neff, 2012). These two aspects of parenting behavior focus on the awareness and accurate interpretation of the infant's cues, behavior and thoughts (Meins, 2013). Prior research on the topics of mind-mindedness and sensitivity lack information on fathers and the role of these parenting behaviors in children's

emotion regulation. However, maternal mind-mindedness and sensitivity have been linked with infant attachment, such that, mothers with higher attunement to their infants have more securely attached infants (Meins, Fernyhough, Fradlet & Tucey, 2001). This link with attachment points to positive associations with emotion regulation; therefore, this research focused on child's gender and father's parenting in infancy and their associations with children's emotion regulation at school age.

Emotion Regulation

Throughout development individuals encounter emotion in their everyday lives and must learn how to identify, express and regulate these emotions. Emotion regulation is defined as the "internal and external processes involved in initiating, maintaining and modulating the occurrence, intensity and expression of emotions" (Silk, Steinburg, Myers & Robinson, 2007). Emotion regulation involves deliberate modification and modulation of emotional reactions (Morrison, Ponitz, & McClelland, 2010) and enables children to understand their emotions, react accordingly and respond appropriately to others' emotions and emotional reactions.

Emotion regulation changes throughout the lifespan and its development is a gradual and continuous process that begins at birth (Cracco, Goossens & Braet, 2017). During childhood, from ages one to ten, there are many milestones in the development of emotion regulation. At birth children rely completely on their caregivers for emotional management and their emotion regulation is primarily external (Cracco, Goossens & Braet, 2017). Caregivers are responsible for identifying emotions and modeling or providing strategies to manage them at this early age. As children develop, around the age of three, they gain the ability to understand and use language, allowing their knowledge of self-regulation to increase through their recognition of basic

emotions and increased social interactions. (Cracco, Goossens & Braet, 2017). By the age of six, children are able to understand the difference between real and virtual emotions and develop better strategies to better regulate their emotions. Once children have reached school age, they are less egocentric and more able to recognize others' emotions. School-aged children also turn to social support when faced with an emotional experience or situation (Cracco, Goossens & Braet, 2017). By pre-adolescent years, ten to eleven years old, children's emotion regulation becomes a more fully internal process and they use cognitive strategies in regulating their emotions (Cracco, Goossens & Braet, 2017). Throughout life, how individuals deal with their emotions continues to develop, thereby allowing us to become more independent and knowledgeable about their emotions.

The ability to regulate one's emotions is vastly important for success in school (Blair & Razza, 2007). According to Nielsen (2002), children who can regulate their emotions become less absorbed by them and can witness others emotions without being overwhelmed by contagious reactions. In other words, by being able to better regulate their own emotions, children are able to have more processing capacity for others' emotional states and appropriate responding (Nieslen, 2002). When children are more in tune with others' emotions, they are able to learn when to appropriately initiate and respond to their peers, an essential social skill (Merrell & Gimpel, 2014). Strong social skills, in turn, enable children to interact more successfully with peers, exhibit more positive classroom behaviors, and –ultimately— promote greater academic competence (McClelland & Cameron, 2011, McKown, Russo-Ponsaran, Allen, Johnson & Warren-Knot, 2016).

In contrast, poor emotion regulation is associated with negative school behaviors and academic failure (McClelland & Cameron, 2011). Children who cannot control their emotions are more likely to act out, behave aggressively, and disagree with the demands of others, such as teachers (McClelland & Cameron 2011). In addition, strong emotional reactions such as anger may interfere with a child's ability to regulate their behavior and focus on the task at hand (McClelland & Cameron, 2011). Emotion regulation is thus an important aspect of children's success in the classroom as it allows them to interact effectively with peers and teachers, feel more competent, and focus on learning.

Child's Gender and Emotion Regulation

As emotion regulation develops, there are many mechanisms of influence on its development. Many of these mechanisms have to do with the child's environment. However, others mechanisms have to do with the child themselves. One child characteristic that may influence emotion regulation is gender. From an early age, boys and girls begin receiving socialization pressures on how to regulate or what to express in terms of emotions (Chaplin, Cole & Zahn-Waxler, 2005). Girls receive signals telling them to be more emotional, express more sadness, submissive, and to internalize emotions, whereas boys are socialized to be assertive and, aggressive (Nolen-Hoeksema, 2012). These gender differences emerge early, particularly in the preschool years.

Parents tend to be these early socialization agents for children, by reinforcing these gender role stereotypes about emotions through their words, actions or attention to their child. The signals and socialization children receive regarding emotion in relation to their gender may influence how they express and regulate their emotions. Females are seen to be the more

emotional sex, who has greater ability to experience, express and dwell on their emotions, whereas males are taught to suppress or avoid the expression or experience of emotion (Nolen-Hoeksema, 2012). Consistent with differences in socialization, according to prior research, girls and boys use different emotion regulation styles. Chaplin et al., (2005) found that girls expressed more suppressive emotions, including sadness and anxiety than boys. Moreover, in their sample of 1,300 girls, Nolen-Hoeksema (2012) found that girls reported using rumination, seeking social support, reappraisal, problem-solving and acceptance significantly more than boys. These findings point to a difference in emotion regulation strategies by gender. Prior research also points to the fact that girls use more adaptive emotion regulation strategies than boys (Nolen-Hoeksema, 2012).. The current study sought to investigate potential differences in emotion regulation strategies used by school-age girls and boys during a challenging task.

Parenting and Emotion Regulation

The infant-caregiver relationship is critical during the first years of life, as the family is often the primary environment children encounter and in which they first learn about emotion expression and management (Eisenberg et al., 2003). Parents are perhaps the most important emotion socializing agents in a child's life (Zenman, Cassano, Perry-Parish & Stegall, 2006). Beginning in infancy children rely on their caregivers to help them regulate their emotions, identify emotions and provide strategies to deal with emotions. Parents can accomplish these things directly through instruction and through the use of modeling, discussion and allowing children to express emotions in certain situations (Zenman et al., 2006). How parents speak and behave, plays a large role in children's learning about emotions. Modeling appropriate emotional

behavior and strategies provides children with an example and a source of information about emotions. Parent's parenting specifically allows for opportunity in learning about emotion regulation. Parenting that is open, warm and responsive provides an ideal warm environment for children to emotionally react and be supported through the regulation process. (Zenman et al., 2006). The conversations parents have with their children about emotions are also vastly important to many aspects of children's emotion regulation. Talking about emotions allows children to identify their own emotions and develop appropriate rules and responses to emotion thereby allowing them to grow in their regulation capacities. More general aspects of the home environment can also shape emotion regulation. Home environments characterized by a positive emotional climate likely shape the quality of children's relationships with other family members, as well as their ability to regulate emotions (Cummings & Davies, 1996; Eisenberg et al., 2003). To establish the strong parent-child relationships that support the development of emotion regulation, caregivers must appropriately read infant signals and respond in ways that minimize distress (Calkins & Hill, 2007). Thus, home environments, along together with parental behavior and the quality of parent-child relationships, begin to shape a child's emotion regulation capabilities at an early age.

Theory and research point to a link between emotion regulation and attachment relationships. Attachment relationships provide the infant with a "secure base" from which to explore the world, leading the infant to develop positive internal working models (i.e. mental models) of the self and others (Ainsworth, Bell & Stayton, 1971) . These internal working models foster infant cognitive development and skills while also fostering their social and emotional development (Pleck, 2007). Higher-quality or "secure" attachment relationships are

formed when parents engage in sensitive and responsive caregiving (De Wolff & van IJoorn, 1997). Sensitivity in parenting is defined as the parents ability to perceive and to interpret accurately the signals and communications implicit in their infant's behavior and respond to them appropriately (Meins, 2013). According to research, there is broad support for the relation of maternal sensitivity and attachment. In Ainsworth's seminal research on attachment, insecure babies were more likely to have mothers who were unable to read their infants behavior (Ainsworth et al., 1971). These mothers responded unsuitably to their infants, because they lacked the sensitivity to correctly perceive their infants point of view. Securely attached infants that experience parental responsive and sensitive caregiving form a bond with their caregiver and rely on them for emotion regulation. They are able to express positive and negative emotions while experiencing regulation through their secure attachment (Calkins & Hill, 2007). This link between sensitivity and attachment points to a link between parental sensitivity and a child's emotion regulation.

In light of the importance of sensitive caregiving for secure attachment relationships, researchers have delved further into understanding the components of sensitive caregiving. Parental "mind-mindedness" is one construct that may provide the basis for sensitive or insensitive caregiving. Mind-mindedness, a term first coined by Mein (1997), refers to the parental ability to treat the infant as an individual with a mind, rather than merely as a creature with needs that must be satisfied. The construct of mind-mindedness allows researchers to distinguish between a mother's general sensitivity to her child's physical and emotional needs and a more specific sensitivity to the child's mental states and ongoing activity (Meins, Fernyhough, Fradley & Tucey, 2001). Mind-mindedness has been proposed as a prerequisite for

parental sensitivity, because in order to interpret infants' cues correctly, parents must first attribute an intention to infants' signals (Laranjo, Bernier & Meins, 2008). Therefore, mind-mindedness is an important component of sensitive caregiving that underpins the development of the secure relationships that provide the framework in which the infant first experiences successful emotion regulation.

Fathers' Parenting

Most prior research on parenting and children's emotion regulation has focused on mothers and largely ignored the roles of fathers. There is much debate on the topic of how fathering is different from mothering and how the behavior of each parent influences child development. Recently, Cabrera, Fitzgerald, Bradeky and Roggman (2014) focused on the dynamic and reciprocal processes by which fathers influence children's development over time. In expanding their model of the processes by which fathers influence children, they point to how fathering is different than mothering. For example, fathers differ from mothers in their interactions with their children as fathers are more likely to tease their children, engage in rough and tumble play, encourage risk taking, socialize gender roles, prohibit their infants activities and be less engaged and sensitive (Cabrera et. al, 2014). Research by Volling, McElwain, Notaro and Herrera (2002) demonstrated that father's are involved in more playful interactions than mothers with their infants, and that fathers' interactions are more physical and stimulating than mothers' interactions with mothers. This research also demonstrated that fathers were more intrusive in their play and less responsive to infant cues compared to mothers. The type of play and the behaviors that fathers engage in might be one reason why infants express more positive emotions during play time with fathers according to Volling et al, (2002). Because of the lack of

research on fathers' parenting compared to that of mothers, the relations between fathers' parenting and children's emotion regulation remain unclear (Cabrera et al., 2018). The current study sought to help fill this gap in the literature by investigating associations between two aspects of fathers' parenting during infancy and children's emotion regulation at school age; father's mind-mindedness and sensitivity.

Father's Mind-Mindedness. Parental mind-mindedness is one important parenting behavior that could be linked to children's emotion regulation. Mind-mindedness, a term first coined by Meins (1997), refers to the parental ability to treat the infant as an individual with a mind, rather than merely as a creature with needs that must be satisfied. Less is known about the implications of fathers' mind-mindedness than mothers' mind-mindedness for children's social-emotional adjustment. Although infants are able to form secure attachments with fathers (Laranjo, Bernier, & Meins, 2008) research is limited on how mind-mindedness influences children's attachment relationships with their fathers. However, a small body of research has found that fathers' mind-minded comments were related to infants' general thought processes and significantly predicted better quality infant-father attachment (Lundy, 2003). Thus, mind-mindedness seems to be an important construct for infants' formation of secure attachment with fathers as well as mothers.

Mind-mindedness also potentially plays a more direct role in children's cognitive and emotional development. According to Meins (1997), when parents treat their children as individuals with minds, parents may "actually be encouraging their children to understand themselves and others as mental agents" (p. 140). Children of more mind-minded parents have better perspective-taking skills compared to children whose parents are less mind-minded

(Lundy, 2003). Overall, the ability of parents to treat their child as an individual with a mind has shown associations with stronger attachment relationships and social-cognitive development, which may—in turn—positively benefit children's ability to regulate their emotions.

Father's Sensitivity. As noted above, theory and research link parental sensitivity to the quality of parent-child attachment relationships (Meins, 2013; Meins, 2001; Brown, Mangelsdorf & Neff, 2012). However, regarding sensitivity and attachment, there is far less research on father-child bonds compared to mother-child bonds. Much of the research on fathers has focused on the degree of their involvement in parenting, with less focus on aspects of the quality of fathers' parenting (Cabrera et al., 2018). Research by Brown et al., (2012), found that not only was sensitivity a strong predictor of the quality of father-child attachment relationships, but children who were the most securely attached had fathers who were more involved and more sensitive, whereas children who were the least securely attached had fathers who were less sensitive and less involved. Grossman, Grossman, Fremmer-Bombik & Scheuerer-Englisch (2002) found similar results in terms of sensitivity. They found that for fathers (but not mothers), sensitivity in terms of emotional support and gentle challenges in a toddler-parent play situation were a strong predictor of child's attachment security at school age.

However, father's sensitivity may not be the only key factor in the father-child relationship predicting child outcomes. Brown, McBride, Shin and Bost (2007) focused on father involvement and multiple qualitative aspects of father's parenting to further examine links between fathering behavior and the father-child relationship. They found that father involvement and parenting quality have interactive effects on the early father-child relationship. In particular, high-quality parenting is beneficial to the father-child attachment relationship, and the quality of

fathers' parenting is more important than the amount of time fathers spend with their children (Brown, McBride, Shin & Bost, 2007). These prior research studies provide general knowledge that sensitivity and fathers' parenting quality may be important predictors of the quality of the father-child relationship and child outcomes; however, much more research is needed to further substantiate these claims. Thus, the current study sought to further investigate the role of fathers' parenting quality, including sensitivity, positive regard, detachment and mind-mindedness and it's associations with children's emotion regulation at school age.

The Present Study

The central goal of this study was to examine the associations between child's gender, father's parenting and school age children's emotion regulation. The study sought to investigate these questions:

1. What strategies do children use to regulate their emotions in a challenging task?

2. Does child gender play a role in the emotion regulation strategies the child uses during a challenging task?

3. Is the quality of fathers' parenting in infancy associated with children's emotion regulation at school age?

I used data from a longitudinal study of parenting and children's development to answer these questions. To measure the quality of fathers' parenting, I observed and analyzed their parenting behaviors, including mind-mindedness during interactions between fathers and their 9-month-old infants. I also assessed the emotion regulation behaviors that these same children used in a challenging situation when they were at school age. I hypothesized that females would be better at regulating their emotions during a frustrating task at school age, and that they would

demonstrate this by using strategies consistent with socialized gender roles. I further hypothesized that fathers who used more mind-minded attuned comments and had better parenting quality overall when their children were infants, would have children who were better able to regulate their emotions during the frustrating task at school age.

Method

Participants and Procedures

Data were drawn from a sample of 182 dual-earner married (86%) and cohabitating (14%) couples and their first-born children who participated in a longitudinal study beginning in 2008-2009 (New Parents Project, NPP). Eligible participants were required to (1) (a) be married, or (b) cohabiting for at least 3 months and living together all or most of the time; (2) be at least 18 years of age; (3) be expecting their first child; (4) be the biological parents of the child they were expecting; (5) be able to read and speak English; (6) be currently employed full-time and both expecting to work at least part-time by the time their infant was 3 months of age; and (7) be planning to stay in the Central Ohio area for at least one year. Participants were mainly recruited through childbirth education classes, recruitment flyers posted at OBGYN clinics and newspaper advertisements.

The original data collection efforts were conducted with expectant parents during the third trimester of pregnancy and at 3-, 6- and 9-months postpartum from October 2008 to October 2010. The current study focuses on data collected at 9-months postpartum. At this time, parents and their infants completed a 1.5 hour in-person assessment. Among other activities, including surveys and interviews, couples were videotaped while discussing a relationship issue, while each parent played individually with their infant for 5 minutes, and while parents played

together with their infants for 10 minutes. For the purposes of this study, I relied on the video recorded father-child interactions that occurred at this time point.

Beginning in July 2016 and continuing until August 2017, original participants were re-contacted to return for a follow-up assessment. At this time point, the children were approximately 7.5 years of age (M=7.85, SD= .43). At this time, parents and child completed a 2.5 hour in-person assessment. At this assessment, parents completed surveys about their child and work history, were videotaped while discussing a relationship issue, completed a mind-minded interview and, attachment script assessment, and were each videotaped interacting for ten minutes with their child and fifteen minutes with their child and partner. The child was videotaped while completing a variety of assessments to measure their social, emotional and cognitive development. Some of these assessments were designed to evaluate emotion regulation skills. I chose to focus on one of these tasks to assess children's emotion regulation in a challenging situation - the attractive toy in a transparent box task.

Measures

Father's mind-mindedness. Fathers' mind-mindedness was measured from the video recorded 5-minute father-child interactions collected at nine-months postpartum using the coding scheme developed by Meins and Fernyhough (2015). Fathers were asked to introduce their child to a new toy (shape sorter or stacking rings) and try to teach their child how to use them for 5-minutes. In accordance with the coding procedure described by Meins and Fernyhough (2015), dyadic interactions were transcribed verbatim. Total comments were counted, and mind-mindedness comments identified. Next, each mind-related comment was coded as either an attuned mind-related comment, which describes the thoughts, feelings, or desires of the infant

appropriately, or a non-attuned mind-related comment, which is related to the infant's thoughts, feelings, or desires, but does not appropriately describe what the coder observes. Coders doubled coded 70% of the episodes. To indicate mind-mindedness, the number of attuned mine-related comments was summed for each father (see Meins et al., 2001, 2015). This was done instead of using the proportion of attuned (out of total) comments, because the episodes were limited to five minutes, and therefore fathers produced relatively small numbers of attuned comments..

Father's parenting quality. The 5-min father-infant interactions were also coded by a separate team of trained raters for paternal sensitivity, positive regard, and detachment using the Parent-Child Coding Manual (adapted from Crnic & Cox, 2002). The coders double-coded 100% of the episodes. Reliability (gammas; see Liebetrau, 1983) was acceptable: sensitivity (.92), intrusiveness (.79), body stimulation (.74), and object stimulation (.91). To create a composite variable representing fathers' parenting quality, paternal sensitivity and positive regard were summed, and detachment scores subtracted.

Gender. Gender of the child was reported by mothers at three months postpartum in a survey. Gender of child was coded either a 0 for boy or 1 for girl. Descriptive statistics were conducted on the sample of 182 families, finding 86 girls and 92 boys with four children having missing data.

Emotion regulation. The Attractive toy in Transparent Box task (Lab-TAB; Goldsmith, Reilly, Lemery, Longley, & Prescott, 1999) is designed to elicit frustration/anger. In this task, children are asked to select one of two attractive toys. The experimenter locks the selected toy in a transparent box, using two locks, a red lock and a blue lock, and leave two sets of incorrect keys for the child. He or she tells the child to try and get the toy out of the box by opening the

red lock first with the set of incorrect red keys and the blue lock second with the set of incorrect blue keys. The experimenter leaves the room. After 4.5 min, the experimenter returns and asks the child if s/he could open the box. When the child says no, the experimenter asks the child to try the keys. The experimenter tries the incorrect keys and when they do not open the box tells the child the lock must be broken. Upon telling the child the lock is broken, the experimenter offers the other toy for the child to play with.

This task was videotaped and coded for emotion regulation strategies using an adapted version of The Behavior Coding Manual (Wu, Feng, Hooper, Ku, 2017). A global coding scale was developed from the original micro-coding scales from The Behavior Coding manual. We took five domains of behaviors frequently observed in the task and created categories. Each category of behavior included other behaviors that could be categorized under the larger domain of behavior. One domain was *problem-solving behaviors*, which consisted of trying to open the box in many different strategies and ways. *Self-soothing behaviors* consisted of repetitive touching to calm oneself, and seeking help or comfort when frustrated and upset. *Distress behaviors* consisted of complaining, whining and or crying. *Active distraction behaviors* were present when children engaged in other play or activity during the task. *Passive waiting behaviors* were present when the child engaged in non-focused sitting or looking. Each child was coded on each domain of behavior using a 5-point global scale that captured the frequency and intensity of that type of behavior throughout the episode. A one reflected low intensity and low frequency of the domain of behavior, while a five reflected a high-frequency of the domain of behavior, while a five reflected a high frequency and high intensity of the domain behavior.

Results

Preliminary Analyses.

These descriptive statistics provided us with preliminary results on children's emotion regulation, father's mind-mindedness, and father's parenting quality. To answer the first research question about emotion regulation behaviors I computed descriptive statistics to find out what strategies children used the most during the challenging task. The behavior codes were not normally distributed, and instead were highly skewed. For example, the vast majority of children showed strong levels of problem solving, whereas relatively few children showed self-soothing behaviors. Thus, I decided to create dichotomous variables to reflect the presence or absence for each type of behavior. In other words, each domain of behavior was either coded as a zero (absent) or one (present). Next, frequencies were computed for each domain of behavior (see Table 1). These statistics revealed that the frequencies of passive waiting and distraction were very low. Thus, subsequent analyses focused on self-soothing, problem solving and distress as these behaviors seemed the most characteristic of children during the challenging task.

Table 1: Emotion Regulation Descriptive Statistics

Emotion Regulation Behavior	**Number of Children**	**Presence of Behavior (5)**	**Absence of Behavior (1-4)**
Problem-Solving	86	86%	14%
Active Distraction	86	11%	88%
Distress	86	35%	65%
Self-Soothing	86	12%	88%
Passive Waiting	86	8%	92%

Descriptive statistics were conducted next on father's mind-mindedness with their infants at nine-months postpartum. On average, fathers made about 68 comments to their 9-month-old infants during the 5-minute interaction. In terms of mind-minded comments, on average 3.91% of fathers' mind-minded comments were attuned while 3.44% of fathers' mind-minded comments were non-attuned. Table 2 includes descriptive statistics on father's mind-minded comments.

Table 2: Father's Mind-Mindedness Descriptive Statistics

Variable	Number of Participants	Minimum Number of Comments	Maximum Number of Comments	Mean	Std. Deviation
Atunned_MM	154	0	17	2.64	2.79
Non-Attuned_MM	154	0	21	2.38	2.93

Finally to evaluate father's parenting quality, I computed descriptive statistics on the global parenting quality variable. Given that parenting quality was created by summing 5-point scale scores on sensitivity and intrusiveness and subtracting detachment, the range of possible score for fathers' parenting quality was -3.00-9.00. The actual range of father's parenting quality in our study was from -2.00 to 6.50 (M= 3.23, SD = 1.73).

Child Gender

In order to investigate the second research question, I examined associations between child gender and children's emotion regulation strategies using a series of chi-square tests. In particular, chi-square tests were conducted for each of the three emotion regulation behaviors I focused on, self-soothing, distress and problem solving. For problem solving, I found no difference in boys and girls, X^2 (1, N=86) = 0.38, p = 0.5. Self-soothing was found to be more

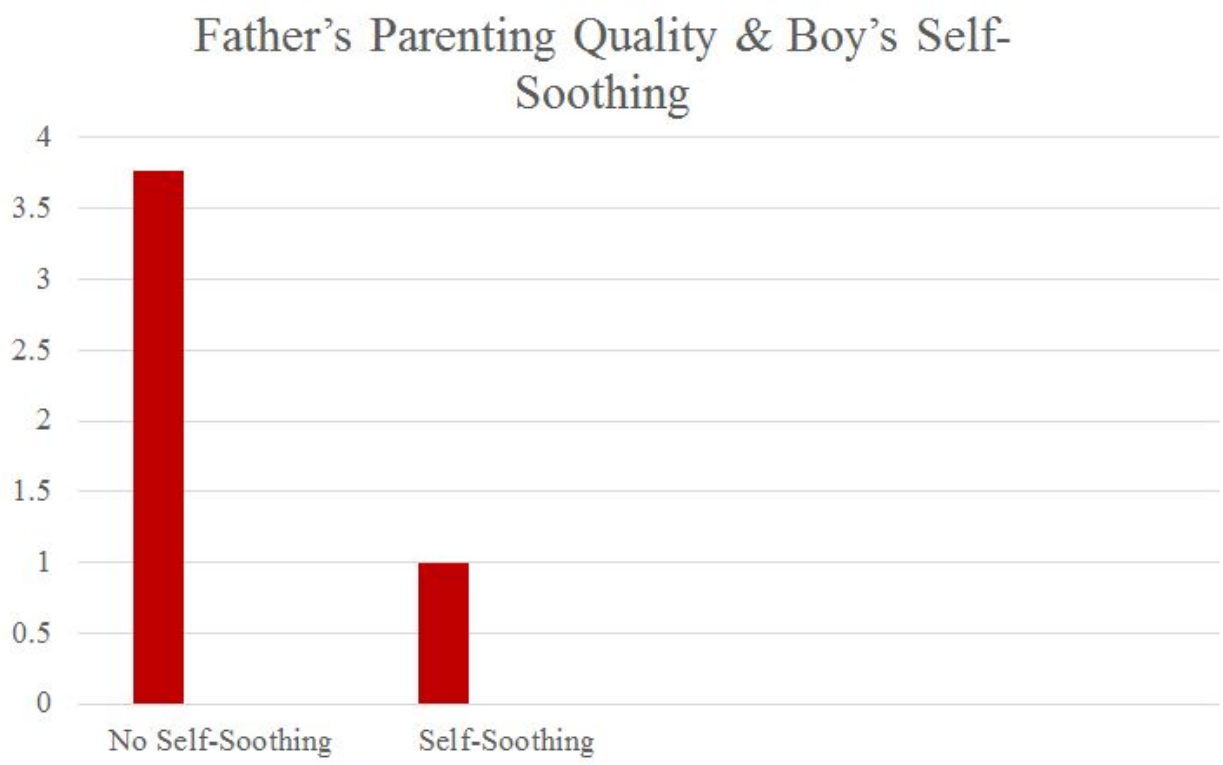
likely in girls than boys during the task; however this association, approached traditional levels of statistical significance, X^2 (1, N=86) = 3.7, p = 0.06. Finally,an association between child gender and distress was found, X^2 (1, N=86) = 3.9, p = 0.05, such that boys were more likely to display distress than girls during the challenging task.

Child Gender, Father's Parenting and Emotion Regulation

To investigate the third question regarding whether father's parenting quality in infancy was related to children's emotion regulation at school age, logistic regressions were conducted in SPSS. The independent variables of father's attuned mind-minded comments and father's parenting quality were entered as predictors of the presence versus absence of each of the three emotion regulation behaviors; self-soothing, problem solving and distress. Because of the differences by child gender in emotion regulation observed, these logistic regression analyses were conducted separately for boys and girls.

These logistic regressions showed that father's parenting quality was associated with boy's self soothing behaviors. Specifically, boys were more likely to engage in self-soothing during the challenging task when they had fathers with lower quality parenting in infancy, OR= .15, p= 0.05. This association is depicted in Figure 1. However the association between father's parenting quality and self-soothing was not the same for girls, as father's parenting quality at nine months was not related to their self-soothing at school age. There was no significant associations between father's parenting quality and the emotion regulation strategies of problem solving or distress, for either boys or girls. There was also no significant associations found between father's attuned mind-minded comments in infancy and children's emotion regulation strategies at school age.

Figure 1:



Discussion

This research sought to investigate the associations between the child's gender, father's parenting quality, and children's emotion regulation at school age. We had three main research questions.

1. What strategies do children use to regulate their emotions in a challenging task?

2. Does child gender play a role in the emotion regulation strategies the child uses during a challenging task?

3. Is the quality of fathers' parenting in infancy associated with children's emotion regulation at school age?

Upon analysis of a sample of fathers and children from The New Parents Project at nine-months postpartum and at seven years, I found that gender and father's parenting at nine months post-partum are associated with children's emotion regulation strategies at seven years old. Specifically, I found that boys are more likely to display distress in a challenging task compares to girls. I also found an association between father's parenting quality and emotion regulation behaviors, but only for boys and not girls. Boys were more likely to use self-soothing behaviors at school age when they had a father with lower parenting quality at nine-months postpartum. These findings indicate that gender socialization and the early quality of the father-child relationship may both be important for a child's emotional development.

There was some evidence that gender plays a role in the emotion regulation behaviors and strategies school age children use during a challenging task. In the current study's sample, boys were more likely to show distress during the challenging task than girls. For girls, we found a trend such that girls were more likely to use self-soothing strategies during the challenging task. In terms of problem solving behaviors, both genders were fairly equal on their use of problem solving behaviors throughout the task. Prior research on gender and emotion regulation points to similar findings as the ones I discovered in this study. Gender differences in emotion regulation are observed early, already in the preschool years, and it is apparent how boys and girls have been socialized to deal with their emotions (Chaplin et al., 2015). In our task, children showed distress behaviors primarily through whining, complaining, or physical aggression during the task. According to prior research boys are socialized to show to be more aggressive and assertive in their emotional expression (Nolen-Hoeksema, 2012), and to express emotion is more externalized ways than girls (Zenman et al., 2006). Indeed boys who exhibited distress

during our task tended to exhibit externally-oriented aggressive or frustrating behavior through their body language or actions e.g., slamming the box down, throwing the keys, groaning, whining, or crying.

In terms of the trend, I found, such that girls were more likely than boys to engage in self-soothing behavior, prior findings also support this. Girls have been found to be more expressive of their emotions, dwell on their emotions, and use more adaptive strategies than boys (Nolen-Hoeksema, 2012). Also, in their sample of 1,300 females, Nolen-Hoeksema, (2012) found that girls reported using rumination, seeking social support, acceptance, reappraisal and problem solving significantly more than boys. In our task, some children showed self-soothing behaviors by mumbling, or making repetitive small movements. However the most frequent self-soothing behavior we saw was seeking help/social support during the task. Based on these behaviors seen throughout the task and girls likelihood to use self-soothing more than boys, this finding seems to agree with the research on girls' emotion regulation strategies.

When we investigated the relations between fathers' parenting quality and children's emotion regulation we found that boys were more likely to use self-soothing strategies at school age when their fathers had lower parenting quality at 9 months postpartum. However this was not the case for girls. This finding can be supported by prior research on the role of fathers parenting in their child's development of emotion regulation. Parents are one of the earliest emotion socializing agents and beginning in infancy children depend on them to regulate and identify emotions and provide strategies for regulating their emotion (Zenman et al., 2006). High-quality parenting is also important to parents being successful role models of emotion regulation for

children. Prior research has indicated that it was not just the time a father spent with his infant, but the quality of the interaction that mattered for children's development (Brown et al., 2007).

The children in our sample who had fathers with lower parenting quality at nine months may have missed out on the proper sensitivity and attunement needed by their father to help them identify and regulate their emotions. This lack of sensitivity and attunement found in lower parenting quality may be associated with the strategies children used to regulate their emotions during the challenging task. Children whose fathers had lower parenting quality may have missed out on opportunities to learn how to regulate their emotions effectively on their own, causing them to resort to other strategies that may not be as successful. However we found that lower parenting quality was linked to greater self-soothing in boys only. Prior theory and research has shown that father's show contrasting attention to boys and girls in ways that reinforce gender role-consistent behavior (Chaplin et al., 2015). Therefore, boys who have lower quality relationships with their father's may have missed out on this reinforcement of emotion regulation behaviors resulting them to use non-traditional forms of emotion regulation for their gender and age. This study's findings provide a glimpse into the role of the father-child relationship in children's emotion regulation but further research is needed to investigate this topic in more depth.

In contrast to father's parenting quality, I did not find any associations between father's mind-mindedness and children's emotion regulation. Past research points to a link between mind-mindedness and sensitivity proposing that mind-mindedness is a prerequisite for sensitivity (Laranjo et al., 2008). In order for parents to interpret their infant's cues correctly they must first attribute an intention to infants signals (Laranjo et al., 2008). Mind-mindedness compared to

sensitivity focuses on the child's mental state and ongoing activity, whereas sensitivity reflects a general responsiveness to a child's physical and emotional needs (Meins et al., 2001). Therefore, mind-mindedness is a more focused aspect of sensitivity. Because mind-mindedness is a more focused aspect of sensitivity, this may have caused us to find no associations between mind-mindedness and emotion regulation in our sample. Mind-mindedness' lacks the attunement to the infants emotions and focuses more on the mind. Therefore, mind-mindedness may not provide the emotion regulation socialization and support in infancy that is needed for better emotion regulation at school age.

Even though this study has contributed to our understanding of the roles of child's gender, and father's parenting quality in children's emotion regulation, this study also has limitations.The main limitations of this study include its modest sample size, possible participation bias, and the task not being challenging enough. Due to its longitudinal nature the study's sample size is modest. Over fifty percent of families returned for our follow-up study and 86 of those families had children compete the attractive toy in a transparent box task. This modest sample size decreases statistical power and may have led to some of our non-significant findings. Potential participation bias comes from the demographics of our sample. Our sample is primarily middle to upper-middle class and primarily white. On average families from a higher socio-economic status are higher educated and have more access to resources to provide sensitive and high-quality parenting. Higher access to resources may also positively impact children's development making them better able to regulate their emotions. Finally, upon coding all of the tasks and looking for emotion regulation behaviors, we did not find a high array or intensity of behaviors. This lack of variability and intensity in emotion regulation may indicate

that the task was not as frustrating and challenging as we expected. This task is originally designed for preschool age children but we adapted the task to make it more challenging by adding another lock. However this may not have made it more challenging as we hoped. If the task is too easy children are less likely to become upset and use emotion regulation strategies during the task. Overall these limitations are important to think about when evaluating the findings of this study.

Conclusion

Emotion regulation is an important process that begins in the early years and is important for success in school and life. Many factors influence the development and expression of emotion regulation, including biological and environmental. Beginning in infancy our main source of emotion regulation is provided by our parents who help us identify and express our emotions. This research sought to investigate father's parenting quality and its associations with emotion regulation in school age children as there is lack of information on the impact of the father-child relationship on child outcomes. I found an association between fathers' parenting quality and emotion regulation strategies for boys, along with information about how child gender affects emotion regulation. Future research should continue to investigate multiple factors that affect the development of effective emotion regulation, so these important developmental processes can be supported and enhanced for all children.

Appendix A

Behavior Coding Scale for Transparent Box Task

- Modified from coding manual by Wu, Feng, Hooper & Ku (2017)

1. **Problem Solving Behaviors:**

- Child attempts to open the box using the keys, looks at keys, and or fits keys into the box
- Child uses language related to problem solving -e.g., I think this is the right key
- Child examines the box and the locks and focuses on them
- Child attempts to open the box without using the keys- i.e., trying to open the lid (not damaging it), pulls the lock or the hook

Range of Scale:

(5) Very high number of problem solving behaviors: Child's problem solving behaviors pervade the episode. No other behaviors present. Frequently looks at keys and/or box. Frequently tries multiple keys and ways to open the box. Uses problem solving language very frequently.

(4) High number of problem solving behaviors: Child makes frequent attempts to try to open both locks. Tries multiple keys and ways to open the box. Looks at box and locks more frequently. Uses problem solving language frequently.

(3) Moderate number of problem solving behaviors: Child's problem solving behaviors take up about half or more of the episode. May try multiple keys and ways to open the box. Child looks at box and keys more than twice. Child may use problem solving language a few clear times.

(2) Low number of problem solving behaviors: Child's problem solving behavior is not as frequent throughout the episode. Does not try multiple keys or ways to open the box. Child looks at keys and or box. Child does not use any problem solving language.

(1) Very low number of problem solving behaviors: Virtually no problem solving behaviors observed during the task.

2. **Active Distraction**:

- Goal-directed behaviors that attempt to redirect child's attention away from the source of distress (the box or the keys) by engaging in other activities in the room, leaving the room, making faces in the mirror, looking outside the window or playing with the key or the box in a new way, without indication of attempts to open the box.
- Child may also engage in vocal distraction by talking to themselves, singing or humming.

Range of Scale:

(5) Very high active distraction behaviors: Distractive behaviors pervade the task. Child does not engage with the task at all. Instead, the child is engaged with another object or toy in the room, looking outside through the window, making faces in the mirror or otherwise entertaining themselves.

(4) High active distraction behaviors: Child is focused on the task for only a short time. Child exhibits frequent distractive behaviors, such as engaging with another toy or object in the room, looking out the window, talking to themselves, and/or looking in the mirror that occur earlier in the episode.

(3) Moderate active distraction behaviors: Child is focused on the task about half of the time period. Child exhibits distractive behaviors such as, playing with something else in the room, making faces in the mirror, or looking out the window for about half of the time period.

(2) Low active distraction behaviors: Child is primarily focused on the task for the whole time period. Child may exhibit some distractive behaviors such as looking out the window or in the mirror once during the task that occur later in the episode.

(1) Very low active distraction behaviors: No active distraction behaviors observed during the task.

3. **Distress:**

- Child may push the keys away or off the table
- Child shows physical aggression by hitting or slapping box, throwing box or keys and or slamming keys against another surface
- Child may complain and whine about the task and state that it is too hard - such vocalizations could be directed at others or to the self
- Child sighs or groans
- Child may release tension or frustration by raising the volume of his/her voice, speaking angrily, yelling or crying

Range of Scale:

(5) Very high distress behaviors: Child's complaints pervade the episode. Child raises volume of his/her voice and whines quite frequently. Child shows obvious signs of distress such as crying or yelling and/or child shows physical aggression frequently during the task. Child's sighing and/or groaning is loud and distressing. Child may give up on the task all together. Crying and or distress begins earlier in the episode.

(4) High distress behaviors: Child makes frequent complaints and whines about the task. Raises volume of his/her voice. Some aggressive behaviors may be present during the task. Child's sighing and/or groaning is loud. Crying and or distress begin earlier in the episode.

(3) Moderate distress behaviors: Child makes several complaints about the task, or whines occasionally. Few aggressive behaviors are observed during the task. Child's sighing and/or groaning are more mild somewhat more frequent. Crying and/or distress may begin later in the episode.

(2) Low distress behaviors: Child makes few complaints about the task. Child shows no physical aggression. Child's sighing and/or groaning are more mild and less frequent. Complaints and/or distress may begin later in the episode.

(1) Very low distress behaviors: No distress behaviors, vocalizations or physical aggression observed during the episode.

4. **Self-soothing and Comfort Seeking**

- Child touches his/her own body or the box or keys; child makes small repetitive movements that s/he may be unaware of
- Child mumbles to him or herself.
- Child tries to get experimenter or parent to help by opening the door
- Child makes sounds to gain attention/help from the experimenter or parent

Range of Scale:

(5) Very high self-soothing and comfort seeking: Child frequently seeks out for parent or experimenter by opening the door and/or calling out loudly. Self-soothing behaviors are frequently observed during the task.

(4) High self-soothing and comfort: Child makes an effort to gain attention/help more than once by opening the door or calling for help. Child engages in some self-soothing and comfort seeking behavior.

(3) Moderate self-soothing and comfort seeking: Child may open door or seek help earlier in the episode. Child seeks help once during the episode. Child engages in a few self-soothing and comfort seeking behaviors.

(2) Low self-soothing and comfort seeking: Child may open door or seek help towards the end of the task. Child engages in at least one self-soothing and comfort seeking behavior such touching themselves or making repetitive movements.

(1) Very low self-soothing and comfort seeking: No self-soothing and comfort seeking behaviors observed during the task.

5. **Passive Waiting**

- Longer than 3 seconds of sitting, lying, or standing, not engaging in any activity and not focusing on or paying attention to the task/toy
- Child sits quietly/motionless, lies on the couch, looks around aimlessly
- Child makes few or no noises and sighs

Range of Scale:

(5) Very high passive waiting: Periods of non-engaged, motionless sitting or lying pervade the interactions. Child sits quietly/motionless. Child makes no noises and sighs.

(4) High passive waiting: Frequent periods of non-engaged, motionless sitting or lying. Child sits quietly/motionless. Child makes no noises and sighs.

(3) Moderate passive waiting: Few periods of non-engaged, motionless sitting or lying. Child sits quietly/motionless. Child makes some noises and sighs.

(2) Low passive waiting: No more than one or two periods of non-engaged, motionless sitting or lying. Child sits quietly/motionless. Child makes some noises and sighs.

(1) Very low passive waiting: No passive waiting behaviors observed during the task.

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